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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/593,760 | 09/22/2006 | Shinichi Chikura | UNIU79.074APC | 9129 |
| 20995 7590 07/20/2009 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614 | | | | |
| EXAMINER MENON, KRISHNAN S | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1797 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary

Application No.

10/593,760

Applicant(s)

CHIKURA ET AL

Examiner

Krishnan S. Menon

Art Unit

1797

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4, 6, 8, 9, 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 7, 10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-13 are pending as amended 2/2/09 in response to the first action of 2/12/09, of which claims 3,4,6,8,9,12 and 13 are withdrawn from consideration.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,2, 5, 10 and 11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 11/722,659. Although the conflicting claims are not identical, they are not patentably distinct from each other because they appear to recite similar limitations.

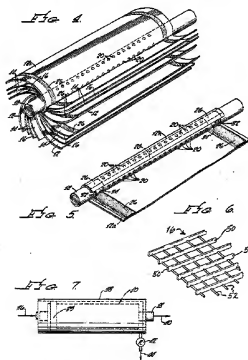
This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

1. Claims 1, 2, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lien (US 4,902,417).

As can be seen in the figures reproduced below, Lien teaches a spiral wound membrane element having feed spacer with warp yarns (50) in the direction of flow and the thinner weft yarns (52) crossing the flow direction – see fig 6. The material is fusion bonded polypropylene, which is commercially available. The dimensional relations between the warp and the weft filaments are seen in column 6, as reproduced below.

U.S. Patent Feb. 26, 1990 Sheet 2 of 2 4,902,417



2,417

6

The ribs 50 are uniformly spaced apart from one another in a parallel grid-like formation which assures equal spacing between adjacent ribs. Preferably, the ribs may be spaced apart a distance equal to or between about 3 and about 10 times the width or diameter of the ribs. This uniform spacing is achieved by the use of cross filaments 52 which are arranged so as to preferably extend parallel to one another and transverse or generally perpendicular to the ribs 50. The cross filaments 52 are themselves uniformly spaced from one another and are of a height less than half the height of the ribs, and preferably less than about 25% of the height of the ribs. The spacing between adjacent filaments 52 is preferably between about 0.5 and about 1.5 times the spacing between the ribs, providing an overall open grid pattern for the sheet material in plan view.

Claim Rejections - 35 USC § 103

2. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lien in combination with Boberg et al (US 4,213,858), Thalman (US 6,106,715), and/or Jannek (US 4,022,692)

Lien'417 is described above. Lien also teaches the requirements of the feed carrier material - see C5, L32 - C6, L60. Since applicant elected claims 5 and 10 along with claim 2, it is assumed that the feed spacer material of claims 2, 5 and 10 are obvious equivalents, even if they appear structurally different.

The spacer as recited in claims 5 and 10 are also obvious equivalents of the spacer recited in claim 2 for the additional reasons presented below:

Boberg teaches tri-layer mesh as claimed for support of dialysis membranes – see fig 1.

Thalman teaches trilayer spacer for spiral wound elements as claimed – see figures 2 and 4. See also column 3, lines 8-38: one would use the teachings of this reference to design a feed space r for the various reasons discussed in this section.

Jannek teaches spacer material having weft and oblique filaments, weft being thicker than the oblique filaments – see fig 2.

As can be seen all these references teach spacer material, and since the primary purpose of the spacer material is to provide a low-pressure drop flow path and at the same time reduce the spacer thickness so that more membrane can be accommodated in the spiral wound, they are functionally equivalent. Applicant's specification also does not provide any additional evidence of patentability. The oblique filament structure is presented by Jannek, and the three-layer structure is presented by

Thalman and Boberg. It would be obvious to combine the teachings of these references to arrive at applicant's invention because they provide nothing more than predictable results.

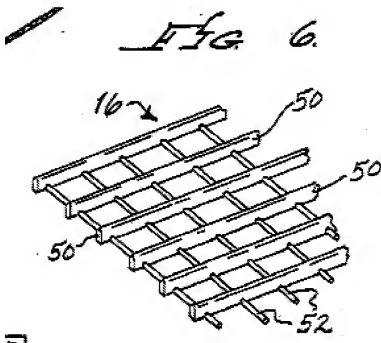
Response to Arguments

Applicant's arguments filed 5/12/09 have been fully considered but they are not persuasive.

Argument that Lien does not teach 'fusion bonded' is not persuasive. Lien and other references in the spiral wound membranes commercially available in the market use fusion bonded polypropylene mesh as the feed spacer. Such mesh is provided by, among others, a company by name DelStar Technologies, formerly known as Nalle Plastics. See <http://www.delstarinc.com/filtration.html>, wherein is listed feed carrier material as one of the product lines.

Even if the reference does not explicitly teaches this mesh as "fusion bonded", fusion bonding is only a method of making and is not patentable in the product claim.

Argument that the cross filaments of Lien are divided in the intersections of the ribs in fig 6 is not convincing. The filaments 52 run at the bottom of the ribs 50 in fig 6 (see the enlarged detail below). It would not be surprising, if the filaments would melt into the ribs during fusion bonding because the filaments have small diameter compared to the ribs.



Regarding claim 7, the Examiner inadvertently missed claim 7 in the title of rejection 1, though it is indicated as rejected in the cover page (PTOL-326). However, it is clear from the rejection that Lien teaches commercially available fusion bonded feed spacer, and thus any argument about it being shear-bonded is not convincing. Moreover, there is no teaching in Lien that the spacer is shear bonded. In addition, fusion bonding is only a process of making the mesh, which is not a patentable limitation in the product claim, and there is no reason to believe that the surface of the mesh in Lien is somehow 'rough'.

Regarding claims 5 and 10, a prima facie case is clearly established, showing that multiple layers of strands for the spacer mesh is known in the art, as well as strands running at different angles. The combination of these arrangements is not patentable

because they provide only predictable results. Applicant has not made any showing otherwise.

Arguments independently attacking the references, or arguments showing that Lien and Janek cannot be combined with Boberg, etc are not persuasive. Even though a "TSM" approach for is no longer necessary to show obviousness (KSR Int'l. v. Teleflex Inc., 127 S. Ct. 1727, 1732, 82 USPQ2d 1385, 1390 (2007).), the paragraph reproduced by the applicant itself provides such a motivation – one would combine the teaching of Janek with Lien and Boberg to reduce the membrane distention while providing a flow path with low flow resistance, as well as maximize exposed membrane surface.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797